



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,835	01/29/2004	Tatsuo Suzuki	61282-054	2365
7590	01/11/2008		EXAMINER	
McDERMOTT, WILL & EMERY			GOMA, TAWFIK A	
600 13th Street, N.W.				
Washington, DC 20005-3096			ART UNIT	PAPER NUMBER
			2627	
			MAIL DATE	DELIVERY MODE
			01/11/2008	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/765,835	SUZUKI ET AL.
Examiner	Art Unit	
Tawfik Goma	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 11 October 2007.
- 2a) This action is **FINAL**.                                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1,2,4-12 and 14-21 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1, 2, 4-12 and 14-21 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____	5) <input type="checkbox"/> Notice of Informal Patent Application
	6) <input type="checkbox"/> Other: _____

## DETAILED ACTION

### *Drawings*

The drawings were received on 10/11/2007. These drawings are acknowledged and entered.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 4-5, 7-12, 14-16, and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over the teachings of the Applicant's admitted prior art in view of Liew et al. (US Publication 2002/0191319 A1).

Regarding claim 1, the Applicant's admitted prior art section of the instant invention discloses a disk controller, which performs a control associated with record of data on a disk and reproduction of data recorded on the disk, comprising: a first memory for storing a first software to perform a first processing (flash memory 9 for storing a firmware; see figure 10 and page 1, lines 13-18 of the instant invention); a second memory for storing a second software to perform a second processing (mask ROM 10 for storing micro-code; see figure 10 and page 1, lines 13-18 of the instant invention); and processing means for reading the first and second software from the first memory and the second memory to independently perform the first processing and the second processing each other (CPU 7 which controls the firmware and the micro-code

independently; see figure 10 and page 2, lines 10-13 of the instant invention), the first processing includes a seek control processing of performing a seek control of the optical disk, and a transmission processing of transmitting information indicating the storage location of data recorded on the optical disk, which includes defect management information indicating an alternative storage location of a defective block, to the second software, (processes implemented in the firmware include defect managing process and a reproduction process that is performed across a spare area and control of an optical pick-up or seek operation; see the description of the Applicant's admitted prior art section on page 6, lines 9-18). Applicant's admitted prior art section further discloses wherein a speed of which the processing means reads a first software from the first memory is lower than a speed of which the processing means reads the second software from the second memory (par. 006).

The description of the Applicant's admitted prior art section differs from the claimed invention in that it does not specifically show that the second processing includes a detection processing of detecting the storage location of data recorded on the optical disk based on the storage location information, and a notification processing of notifying a request for seeking the storage location, in which data detected by the detection process is recorded on the disk, to the first software. Liew et al. on the other hand teach that the memory 143 (other than the firmware 145) includes programming modules: defective sector identifying module; see page 3, paragraph [0030], lines 8-10, conversion module notifies by updating the pointer to point to the next defective sector address; see figure 11, step 812) and during seek operation the controller 142 receives information from memory 143 (see page 3, paragraph i0032], lines 8-15). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the

memory in such a way since Liew et al. teach that during each disk drive power up, the information stored in the defect table is loaded into memory and the controller uses this information to prevent reading from or writing to the defective area (see page 5, paragraph [0044], lines 7-11).

Regarding claim 2, the combination of Liew et al. (US Publication 2002/0191319 A 1) and the Applicant's admitted prior art in the instant invention teach the limitations of claim 1 for the reasons discussed above. The combination differs from the claimed invention in that it does not specifically show a plurality of the first software and a plurality of the first memory. Official Notice is taken that it is old and well known to have a plurality of first software and a plurality of memories. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a plurality of first software and a plurality of the first memories in the system of the combination of Liew et al. (US Publication 2002/0191319 A 1) and the teachings known in the art. The rational is that having more memory speeds up the processing of codes and providing multiple memories gives more space to have more programs/software.

Regarding claims 4 and 14, as applied to claims 1 and 12 and also the Applicant's admitted prior art section of the instant invention shows that the first memory is flash memory (the firmware is in flash memory and the second memory is ROM; see figure 10 of the instant invention).

Regarding claims 5 and 15, as applied to claims 1 and 12 and also the Applicant's admitted prior art section of the instant invention shows that the first program is firmware and the second program is a microcode (see figure 10 of the instant invention).

Regarding claim 7, as applied to claim 1 above the description of the Applicant's admitted prior art section shows that the first processing has information extraction processing of extracting only information required for reproduction of the data stored on the optical disk and organizing the information into a defect management information to be transmitted to the second software (implementation of the firmware includes defect managing process and a reproduction process; see page 6, lines 9-17).

Regarding claim 8, as applied to claim 1 above and Liew et al. also teach that the defect management information is organized in tabular form (there is a defect table 123; see figure 2)

Regarding claim 9, as applied to claim 7 above, Liew et al. also teach that the data storage locations of the defect management information are arranged in an ascending order (see page 5, table 3).

Regarding claim 10, as applied to claim 7 above, Liew et al. also teach that the defect management information includes an identification code which indicates an end of a table (at the end of padding the defect lift the program updates the pointer to the next defective sector; see step 812 of figure 11).

Regarding claims 11 and 16, as applied to claims 1 and 12 and also the Applicant's admitted prior art section of the instant invention shows that the defect management information is in conformity with Mt. Rainier standards of optical disks (see figure 10 of the instant invention).

Regarding claim 12, the Applicant's admitted prior art section of the instant invention discloses a disk controller, which performs a control associated with record of data on a disk and reproduction of data recorded on the disk, comprising: a first memory for storing a first software

to perform a first processing (flash memory 9 for storing a firmware; see figure 10 and page 1, lines 13-18 of the instant invention); a second memory for storing a second software to perform a second processing (mask ROM 10 for storing micro-code; see figure 10 and page 1, lines 13-18 of the instant invention); and processing means for reading the first and second software from the first memory and the second memory to independently perform the first processing and the second processing each other (CPU 7 which controls the firmware and the micro-code independently; see figure 10 and page 2, lines 10-13 of the instant invention), the first processing includes a seek controlling process of performing a seek control of the optical disk (processes implemented in the firmware include defect managing process and a reproduction process that is performed across a spare area and control of an optical pick-up or seek operation; see the description of the Applicant's admitted prior art section on page 6, lines 9-18). Applicant's admitted prior art section further discloses wherein a speed of which the processing means reads a first software from the first memory is lower than a speed of which the processing means reads the second software from the second memory (par. 006).

The description of the Applicant's admitted prior art section differs from the claimed invention in that it does not specifically show that the second processing includes a detection processing of detecting that data stored in a buffer memory temporarily storing data which the processing means reads from the optical disk is data storage location of last block of a first data area, notification processing of notifying a request for a seek for first block of a second data area following last block of the first data area to the first software, and connection processing of connecting the last block of the first data area and the first block of the second data area which are logically continuous. Liew et al. on the other hand teach that the memory 143 (other than the

firmware 145) includes data store area 152 for temporarily storing data (see figure 2) and during seek operation the controller 142 receives information from memory 143 (see page 3, paragraph [0032], lines 8-15), the memory 143 also includes conversion module 158 merges two defective adjacent sectors or blocks. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the memory in such a way since Liew et al. teach that during each disk drive power up, the information stored in the defect table is loaded into memory and the controller uses this information to prevent reading from or writing to the defective area (see page 5, paragraph [0044], lines 7-11).

Regarding claims 20-21, apparatus claims 20-21 are drawn to the apparatus which comprises/uses the corresponding optical disk controller on a memory medium claimed in claims 1 and/or 11. Therefore the apparatus claims 20-21 correspond to optical disk controller claims 1 and/or 11 and are rejected for the same reasons of obviousness as indicated above.

Claims 6 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the teachings of the Applicant's admitted prior art in view of Liew et al. (US Publication 2002/0191319 A1) as applied to claim 1 above, further in view of IBM Technical Disclosure TBD NN9408185, p. 185-188, (August 1, 1994).

Regarding claim 6, the combination of Liew et al. (US Publication 2002/0191319 A 1) and the discussion of the Applicant's admitted prior art section of the instant invention teach the limitations of claim 1 for the reasons discussed above. The combination differs from the claimed invention in that it does not specifically show the second processing includes a defect detection processing of detecting that a block of the storage location detected by the detection processing is a defective block, and judgment processing of judging whether an alternative storage location

of data to be read is two or more consecutive blocks based on the defect management information when the block of the storage location of detected by the detection processing is the defective block, wherein two or more consecutive blocks of data read as a result of a seek for a first block of the alternative storage location are stored in a buffer memory to accommodate a second and subsequent blocks of the alternative storage location when the judgment processing judges that the alternative storage location of the data to be read is two or more consecutive blocks.

IBM Technical Disclosure TBD NN9408185, p. 185-188, (August 1, 1994) on the other hand discloses that if the initiator is executing a multi-sector read or write, the drive is required to seek between the nominal contiguous sectors and any replacement sectors. These added seeks cause a considerable performance impact and the proposed method is summarized as a cache memory buffer mechanism dedicated for the storage of some number of replacement sectors (see the last three lines on the first page through the first seven lines on the second page). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a buffer memory in such a way since IBM Technical Disclosure TBD NN9408185, p. 185-188, (August 1, 1994) discloses that cache mechanism would allow the drive to avoid the costly seeks associated with reading replacement sectors when a cache 'hit' occurs (see lines 7-9 on the first page).

Regarding claims 17-19, method claims 17-19 are drawn to the method of using the corresponding optical disk controller on a memory medium claimed in claims 1-16. Therefore the method claims 17-19 correspond to optical disk controller claims 1-16 and are rejected for the same reasons of obviousness as indicated above.

***Response to Arguments***

Applicant's arguments filed 10/11/2007 have been fully considered but they are not persuasive. Applicant's arguments are not persuasive because the Applicant's admitted prior art shows that the U-code memory is processed at a faster speed than the Firmware memory. In the combination of Liew and the Applicant's admitted prior art, the second process and software are placed in the U-code memory. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., CD-MRW standard processing) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tawfik Goma whose telephone number is (571) 272-4206. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tawfik Goma/  
1/07/2008

/William Korzuch/  
SPE, Art Unit 2627